

MDA Horticulture Fund 2007 Progress Report

Project Title: Evaluating the biological characteristics of ornamental plant species and selected cultivars for invasiveness

Project MDAH# 97529

Principle Investigator: Robert E. Schutzki

Reporting Period: 2007-2008

Accomplishments during Reporting Period:

Project start date was July 1, 2007. Permission to conduct the research using prohibited and restricted species was approved by the Michigan Department of Natural Resources in accordance with Transgenic and Invasive species regulations (Part 413, of P.A. 451 of 1994).

Activities are as follows:

- 1) Monitored flowering characteristics on *Fallopia japonica*, F. j. 'Compacta' and F. j. 'Variegata' and F.j. 'Variegata Nana' in landscape settings. Landscape sites with *Fallopia japonica* were monitored in Lansing, Farmington, Grand Rapids, Spring Lake, Cadillac, and Beulah, Michigan. Other sites within the state are being identified and will be monitored during the 2008 season. Data on flower parts and seed development was recorded. Seeds were found on one population of *Fallopia japonica* out of three at a site in Lansing. These three populations were separated by approximated 75-100 feet. There were no seeds produced on *Fallopia japonica* at any of the other sites. Two landscape sites with F. j. 'Compacta' were found in Grand Rapids and Spring Lake. Seeds were present on F. j. 'Compacta' at both sites. The sites adjacent to and surrounding these landscape sites did not have seedlings present. No seeds were found on F. j. 'Variegata' and F.j. 'Variegata Nana' in the 2007 season.
- 2) Collected seeds of *Fallopia japonica* and F.j. 'Compacta' from landscape sites. Seeds were processed, stored and sown in the greenhouse and field plots to monitor germination rates and percentage survival.
- 3) Collected stem samples of *Fallopia japonica*, F. j. 'Compacta' and F. j. 'Variegata' from landscape sites. Data was recorded on leaf area, branching, and internode length. Data will be analyzed during the next two months.
- 4) Due to the prohibited and restricted status of these species, it was difficult to find available plants in the 2007 season. We have acquired *Fallopia japonica* 'Variegata' and a few plants of *Myriophyllum aquaticum*. The remaining species and cultivars (*Fallopia japonica* 'Compacta' and F. j. 'Variegata' and F.j. 'Variegata Nana'; *Phragmites australis* 'Candy Stripe'; *Myriophyllum aquaticum*; and *Egeria densa*) have been ordered for the 2008 growing season and will be planted according to conditions outlined in the Michigan DNR approval letter.

5) Several *Phragmites australis* sites have been identified throughout the state and stem samples are being collected and data recorded on leaf area, branching, and internode length and seed formation during the dormant season.

6) Initial vegetative propagation experiments are being conducted on shoot tips and stem sections of *Myriophyllum aquaticum* under greenhouse controlled conditions. Field experiments on vegetative propagation will follow this spring and summer. No flowering has occurred on these plants to date.

7) Literature searches have been conducted on all species and documentation assembled for inclusion in the Michigan Plant Invasiveness Assessment System.

Planned activities for the next reporting period:

Field plots for all species and cultivars will be established in the spring. Data monitored will include: flower characteristics (reproductive parts); fruit characteristics and set; seed number; seed viability (under controlled conditions) and in situ (in the field under natural conditions); and vegetative growth characteristics. These parameters will be collected both in the plots at Horticulture Research and Teaching Center, Michigan State University and at identified natural areas and landscape settings throughout the state. This project was developed as a multi-year project. Plant behavior will continued to be monitored and data analyzed for three successive growing seasons.

Other funds or contributions related to the project:

The information gained through this project has been used to expand our research project on the documentation of the invasive characteristics of several aquatic and terrestrial species. Project proposals have been submitted to Project GREEN and will be submitted for the 2008 funding cycle for the Michigan Nursery and Landscape Association and Horticulture Research Institute.

Publications/outreach activities related to the project:

The information received to date was incorporated into presentations given at the 2008 Ohio Nursery Short Course in Columbus, Ohio and discussed at a recent meeting of nursery representatives at the 2008 MidAm Trade Show, Chicago, IL. A progress report was submitted to the Michigan Department of Natural Resources in accordance with the permit to conduct research on these prohibited and restricted aquatic species.

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